CLAIMS

1. A titanium alloy part having a compressive stress of approximately 270 MPa or more within a depth of about 100 μm from a surface thereof.

2. The titanium alloy part of claim 1, further comprising a surface region extending from the surface to a depth of about 100 μm, and an internal region disposed internally relative to the surface region, wherein the surface region includes a modified layer containing more α phase than does the internal region, the modified layer accounting for a proportion of about 10 vol% or less of the surface region.

3. The titanium alloy part of claim 1 or 2, wherein the surface has a maximum surface roughness Rt of about 20 μm or less.

4. The titanium alloy part of any of claims 1 to 3,

wherein the titanium alloy part contains about 50 vol% or more of β phase at room temperature.

5. The titanium alloy part of any of claims 1 to 4, wherein the titanium alloy part is a spring.

6. The titanium alloy part of any of claims 1 to 4, wherein the titanium alloy part is a suspension spring for a vehicle.

7. The titanium alloy part of any of claims 1 to 4, wherein the titanium alloy part is one selected from the group consisting of a valve spring for an engine, a connecting rod for an engine, and a structural part for an aircraft.

8. An engine comprising the titanium alloy part of any of claims 1 to 4.

9. A vehicle comprising the titanium alloy part of any

of claims 1 to 4.

10. A method for producing a titanium alloy part comprising:

step (A) of providing a shaped titanium alloy part;

step (B) of subjecting the shaped titanium alloy part to a shot peening using a first shot medium; and

step (C) of mechanically or physically removing at least a part of a modified layer created in a surface region of the shaped titanium alloy part as a result of step (B).

11. The method for producing a titanium alloy part of claim 10, wherein step (C) comprises shooting a second shot medium against a surface of the shaped titanium alloy part, the second shot medium having a higher hardness than that of the first shot medium.

12. The method for producing a titanium alloy part of claim 11, wherein the second shot medium has a Vickers hardness of about 1,000 or more.

13. The method for producing a titanium alloy part of claim 11 or 12, wherein the second shot medium contains SiO_2.

14. The method for producing a titanium alloy part of any of claims 10 to 13, wherein step (C) removes the shaped titanium alloy part at a depth of about 20 μm to about 40 μm from the surface.

15. The method for producing a titanium alloy part of any of claims 10 to 14, wherein the shaped titanium alloy part has a Vickers hardness of about 370 to about 470.

16. The method for producing a titanium alloy part of any of claims 10 to 15, wherein step (A) comprises:

step (A1) of winding around a wire material of a titanium alloy to obtain a shaped titanium alloy part having a coil shape; and

step (A2) of subjecting the shaped titanium alloy part to an aging treatment.

17. The method for producing a titanium alloy part of any of claims 10 to 16, wherein step (B) comprises shooting the first shot medium against the shaped titanium alloy part via centrifugal force, compressed air, or hydraulic pressure.